ECONOMIC ANALYSIS OF THE PROPOSED PESTICIDES EMERGENCY EXEMPTION PROCESS REVISIONS

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Economic Analysis

I. Background for the Proposed Rule:

EPA is proposing several revisions to the regulations at 40 CFR part 166, which govern such FIFRA section 18 emergency exemptions. The most significant of these proposed improvements are two revisions intended to streamline and improve the application and review process by reducing the burden to both applicants and the EPA, allowing for quicker decisions by the Agency, and providing for more equitable determinations of "significant economic loss" as the basis for an emergency. These two proposals are currently being employed in limited pilot programs. The first would allow applicants for certain exemptions to re-certify that the emergency conditions which initially qualified for an exemption continue to exist in the second and third years. The second proposal would allow greater flexibility in the submission of data to demonstrate significant economic loss (SEL) and corresponds to a change in methodology to make that determination. The new methodology focuses on the loss compared to current economic and agronomic conditions rather than conditions over the past five years. In addition, EPA is proposing to revise the regulations to clarify that quarantine exemptions may be used for control of invasive species, and to update or revise certain administrative aspects of the regulations. All of these proposed revisions can be accomplished without compromising protections for human health and the environment.

A. Overall Approach:

This is primarily a cost saving rule, reducing burden on states and on EPA. In conducting the economic analysis the Agency is analyzing the benefits and impacts of the proposed rule. The benefits of the proposed rule are the cost savings from both the re-certification and reduction in data requirements by using the loss based method. The impacts of the proposed rule are analyzed by comparing the outcomes of SEL findings for both the current method and the proposed method.

1. Benefits–estimating cost savings. The re-certification part of the rule reduces costs for both states and EPA with respect to submitting and reviewing section 18 packages. The new data requirements for demonstrating a SEL do not demand historical information, particularly the more onerous requirement for yearly production costs. Because the proposed SEL method uses a tiered screening system, states may be able to submit less data and will in no case need to submit more. This EA estimates how often a cost savings event occurs and adds up the reduced burden using the section 18 ICR estimates of burden. The analysis demonstrates that the proposed rule would result in considerable cost savings to the applicants and some savings to EPA.

2. Impacts–comparing findings of SEL (significant economic loss) under the current and proposed methods for determining SEL. The analysis demonstrates that there would be no change in the overall likelihood of a SEL finding, although there would be different SEL findings in about 12% of the requests. EPA believes that these differences would be more equitable than the current findings.

B. Reason for the Proposed Changes Are:

1. Re-certification: The Agency believes that most candidates for re-certification can be registered relatively quickly. This will allow applicants for certain repeat exemptions to re-certify that the emergency conditions which initially qualified for an exemption continue to exist in the second and third years. The applicants' own certification that the emergency situation is ongoing, along with their incorporation by reference of their earlier full application, will take the place of the submission of data generally required to support a repeat request for an emergency exemption. In this way, the burden associated with the application process for select repeat requests will be significantly reduced. In addition, re-certification will often allow EPA to make quicker decisions on exemption requests.

2. Determination of Significant Economic Loss (SEL): In developing a more appropriate methodology for determining SEL, the Agency considered three factors:

   a. To focus the determination of losses due to emergencies caused by urgent and non-routine pest problems on existing conditions. The current methodology may confound the issue with past price volatility and may result in an inappropriate criterion of significant economic loss. Historical data have been used to provide a baseline for estimating both normal profits and variation *in the absence of the emergency condition* for the affected area. However:
      (1) *Historical data may not be representative of existing physical and economic conditions.* While unusual weather conditions may lead to pest outbreaks, the weather conditions themselves should not influence the calculation or significance of loss. Similarly, many crops have demonstrated high price variability or significant changes in price over the past several years.
      (2) *Historical data are often affected by the emergency condition*. Pest pressure related to the emergency condition in previous years (even if not significant) may reduce revenues and distort the estimation of baseline revenues and variation. For example, historical data often reflect increasing pesticide resistance that may have begun before an emergency exemption was requested, but where the resistance later becomes the basis for requesting the exemption. In the case of repeat emergency exemptions, the historical data are affected by both the revenue-decreasing emergency condition and revenue-increasing use of the requested pesticide, which will not necessarily equally offset each other.
      (3) *Historical data may be unavailable in many states for minor and new crops*.
      (4) *The focus on historical data may make it difficult to demonstrate some pest-related losses.* While pest damage usually results in a loss in quantity harvested, sometimes the losses are due to reduced quality of the product that decrease the price received by growers. Damage to orchards and other perennial crops may result in losses over several years. These types of losses have not fit well under the present method of analysis.

   b. To increase transparency and establish more consistent measures of economic loss. In the current revenue variation method, crops with high yield variability (such as many non-irrigated crops) or with high price variability must have high pest losses to meet the criterion of SEL compared to crops with stable yields and prices. Therefore, this criterion may be unfair to farmers already facing high yield and price risk while inappropriately granting exemptions to farmers of low-risk crops with minor pest losses .

   c. To reduce the burden of data collection and analysis on the part of the states and the Agency. In many cases a decision can be made with less information, thus speeding decisions for these cases and permitting more resources to be devoted to more complex situations.

C. Description of the Current Revenue Variation Method

The revenue variation method defines an economic loss as significant if it would cause expected net revenue to fall below the minimum historical net revenue over a period of typically five years. In some cases, past yields and/or prices may be considered to be outside normal bounds. For example, drought may reduce yields such that one year in the data cannot be considered typical. Analysts may use judgement to eliminate outliers from the determination of the minimum net revenue.

The economic consequences of the emergency are determined separately. In most cases, yield losses are predicted, but the impacts may also include quality losses or increases in pest control costs. For example, an unusual pest outbreak might be controlled by multiple applications of a registered pesticide when typically only one application would be necessary. If these predicted losses would result in net revenue that is lower than the lowest net revenue over the past five years (after eliminating outliers) then these losses are considered significant.

D. Description of the Proposed Loss-based (Tiered) Approach:

The loss-based approach uses the same methodology to calculate the economic consequences of an unusual pest outbreak. States will still have to submit data to demonstrate the emergency nature of the outbreak and the expected losses in quantity, quality and/or additional production costs. The proposed approach would provide applicants with greater flexibility in establishing the baseline scenario. Even though 5 years of historical economic data are not required under the proposed approach, applicants may continue to utilize historical data to establish baseline gross and net revenues from which to estimate economic losses in Tiers 2 and 3 described below. The new approach imposes a standard criterion for determining the significance of that loss, rather than comparing losses to past revenues. The goal of the criterion is to compare losses to expected farm income in a manner that can be easily measured. Further, successive screening levels have been chosen that will permit situations that clearly qualify to be resolved quickly and with a minimum of data.

1. Tier Thresholds

Tier 1, Yield loss ≥ 20%: The first screen is based on crop yield loss and is a quantity-based measure. EPA will conclude that a significant economic loss will occur if the projected yield loss due to the emergency condition is verified to be 20% of expected yields or greater. The yield loss threshold in Tier 1 will be the same for all crops and regions. This threshold is set at a level such that a loss which exceeds the threshold would generally also meet the thresholds in Tiers 2 and 3, if the additional economic data were submitted and analyzed. Therefore, for large yield losses it is not necessary to separately estimate economic loss, which requires detailed economic data. Yield losses are measured as the difference between expected yields in the absence of the emergency and yields under the emergency condition when using the best available, registered alternative.

Tier 2, Economic Loss ≥ 20% of Gross Revenues: For situations with yield losses that do not meet the yield loss criterion for Tier 1, EPA will evaluate estimates of economic loss as a percent of gross revenue in Tier 2. Economic losses result not only from yield losses, but also from causes such as quality losses and changes in production costs, including pest control, harvesting, sorting and processing. EPA will conclude that a significant loss will occur if the projected losses due to the emergency condition are verified to be 20% of expected gross revenues or higher. This threshold will be the same for all crops and regions. Quality losses occur when damage results such that the commodity fails to meet the market standards for a high-value segment (*e.g.*, export or fresh market) and must be sold in a lower value outlet (*e.g.*, domestic or processed market). Quality losses can occur without loss in quantity or can occur in conjunction with yield losses. This tier will also consider losses due to higher production costs. Higher production costs could include additional pest control costs, for example, mechanical weeding, or additional harvest costs, for example, sorting into different grades. However, these costs must be a result of the emergency before the expenses can be included in the projected loss.

Tier 3, Economic Loss ≥ 50% of Net Revenues above Operating Costs: For situations in which losses do not meet the criteria for Tiers 1 and 2, EPA will evaluate estimates of economic loss as a percent of net revenue in Tier 3 . Economic losses are defined as in Tier 2. EPA will conclude that a significant loss will occur if the projected losses due to the emergency condition are 50% of expected net revenues or higher. This threshold will be the same for all crops and regions. For this purpose, the Agency defines net revenue as gross revenues less variable operating costs (purchased inputs and hired labor). The Agency considers only variable operating costs because these costs are easier to measure and document than fixed costs, such as overhead and depreciation of machinery, and because they are likely to be more reflective of short-term impacts due to emergency conditions. The Agency recognizes that net revenues above operating costs overstate grower income, but believes the facility of measurement and verification make it a more useful measure.

Losses that do not fit into this general pattern will be evaluated on a case-by-case basis. For example, damage to perennial crops that may result in losses over several years could be evaluated as a loss in capital or in returns on an investment, depending on the situation. In those cases, the states must submit data appropriate to their case.

2. Basis for Tier Thresholds

The choice of thresholds 20%, 20%, and 50% is based on the following three considerations.

a. Farm income

The tier thresholds are based on average farm income and production expenses for the USA. The latest annual report from USDA shows farm production expenditures in the USA to average about 80% of gross revenue (USDA, 2003). The remainder, net farm income, is essentially the wages earned by the growers. See table below.

Table 1. Aggregate Farm Income and Costs for the U.S. in $ billions

	1997	1998	1999	2000	2001	Average	% of gross revenue
Gross Revenue	$238.1	$232.1	$234.5	$241.7	$246.5	$238.6	100.0%
Total Production Costs	$187.6	$186.5	$188.3	$193.7	$200.8	$191.4	80.2%
Operating Costs	$136.1	$134.8	$136.5	$140.4	$147.0	$139.0	58.2%
Fixed Costs	$51.5	$51.7	$51.8	$53.3	$53.7	$52.4	22.0%
Net Revenue = gross revenue - operating costs	$102.0	$97.3	$98.0	$101.3	$99.5	$99.6	41.8%
Net Farm Income = gross revenue - total production cost	$50.5	$45.6	$46.2	$48.0	$45.7	$47.2	19.8%

Source: USDA Agricultural Statistics, 2003.

An economic loss of 20% of gross revenue would be sufficient to eliminate net farm income, which is on average about 20% of gross revenue. A yield loss of 20% results in economic loss of 20% or more of gross revenue.

Since net farm income is a little less than 50% of net revenue, an economic loss that is 50% of net revenue would be sufficient to eliminate net farm income.

a. Retrospective Analysis

In addition, a retrospective analysis was done on past emergency exemptions and the results are shown in Figure 1. To qualify as a SEL under a direct use (without subjective judgement) of the revenue variation approach, the losses caused by the emergency must result in the expected net revenue being equal to or less than the minimum net revenue over the last 5 years. According to the retrospective analysis:

(1) Tiers 1 and 2. The average and median economic losses that would have qualified as a SEL under the current method (i.e. calculated thresholds of losses) were about 18% and 15% of gross revenue, respectively.

(2) Tier 3. The median economic loss that would have qualified as a SEL under the current method was about 51% of net revenue.

Since the first 2 tiers are screening thresholds, these thresholds were rounded up to 20% to be a little more stringent, with the idea being that if they did not pass Tiers 1 or 2, they could qualify with Tier 3. Tier 3 compares losses to net revenue (gross revenue minus operating costs).

b. Neutral to Likelihood of a SEL

The proposed approach is not expected to significantly change the likelihood of an application qualifying for a SEL. That is, approximately the same number of emergency requests that qualified for a SEL using the current revenue variation approach, would have qualified using the proposed loss-based (tiered) approach, although there would be differences in individual cases. That is, some cases would have qualified for a SEL under the proposed method that did not qualify under the current method and visa-versa with the total number qualifying being the about the same with both methods. See Section IIIE, Comparison of Findings. EPA believes that the differences in which cases qualify would be more equitable and consistent under the proposed method.

B. Statutory and Regulatory Requirements:

1. Statutory Provisions: FIFRA, Section 18

FIFRA generally prohibits the sale and distribution of any pesticide product, unless it has been registered by EPA in accordance with section 3. One exception to this general prohibition is section 18 of FIFRA, which gives the Administrator of EPA broad authority to exempt any Federal or State agency from any provision of FIFRA if the Administrator determines that emergency conditions exist which require such exemption.

2. Regulatory Provisions: 40 CFR, Part 166

Regulations governing such FIFRA section 18 emergency exemptions are codified in 40 CFR part 166. Generally, these regulations allow a Federal or State agency to apply for an exemption to allow a use of a pesticide that is not registered when such use is necessary to alleviate an emergency condition. A State, as defined by FIFRA section 2(aa), means a State, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, the Trust Territory of the Pacific Islands and American Samoa. The regulations set forth information requirements, procedures, and standards for EPA's approval or denial of such exemptions.

II. Methodology of Economic Analysis

A. Purpose of EA (economic analysis)

The purpose of this EA is to evaluate the costs and benefits of the proposed rule change. The EA:

1. Compares findings (both the overall likelihood of a finding and the findings for individual cases) to determine if there would be an impact with substantially different conclusions under more flexible data requirements, given changes in guidance for evaluating SEL. The analysis indicates that there would be virtually no impact in the overall likelihood of a finding of SEL, and that small differences in findings for individual cases would be more equitable.

2. To estimate the cost savings of the rule as a result of :
   a. More flexible data requirements for determining SEL (significant economic loss).
   b. Reduced data requirements for re-certification of emergency conditions.

B. Significant Economic Loss (SEL)

1. SEL Database. The first step in this analysis was to populate a database of SEL findings under different approaches. EPA developed a SEL spreadsheet template that determines SEL findings under both the current and proposed methods, as well as what the analyst concluded. This SEL spreadsheet was used to analyze many of the exemption requests since 2000 and to populate the SEL database used for this analysis.

2. Cost Savings Analysis.

   a. Number of cases qualifying. With the SEL database EPA determined the number of cases which would have qualified as a SEL under each Tier. Then EPA assumed the same proportion would qualify in the future. A significant economic loss (SEL) is defined as a loss that would pass any one of the following tiers:

      Tier 1 - Yield loss $\geq$ 20%. Significant cost savings for both states and EPA.
      Tier 2 - Economic loss as a percent of gross revenue $\geq$ 20%. This tier also covers quality losses and cost increases. Economic loss is defined as loss in revenue from yield and quality losses plus increased costs as a result of the emergency, such as increased pest control or harvesting costs. This tier would also save resources because production costs other than cost increases are not required.
      Tier 3 - Economic loss as a percent of net revenue $\geq$ 50%. This tier also considers the impact on net revenue. This tier has the same numerator, economic loss as Tier 2, but compares that economic loss to a different denominator, net revenue. Net revenue is defined as gross revenue minus operating costs. This tier should still save some resources since historical data are not required. However, operating cost information needs to be more documented than has often been the case in the past, when states have not clearly defined the costs included in the

submitted data. Therefore, BEAD assumes that the resource requirements would be comparable to the revenue variation method.

b. Cost saving per case. Using ICRs (information collection requests) and expert opinion from scientists in EPA, the agency estimated the savings.

c. Estimate cost impacts. The agency can estimate the total cost savings by multiplying the number of cases qualifying for a SEL per year under Tiers 1 and 2 by the cost savings per case for each respective tier, *i.e.*:

$\sum$ (cost savings for Tiers 1 & 2 requests) X (number of cases qualifying for Tiers 1 & 2)

This calculation may overestimate the cost savings, since states may choose to submit more data than would be necessary in case EPA does not concur with their loss estimates. That is, states claiming yield losses in excess of 20% may still decide to submit price and production cost data in case EPA's evaluation suggests that yield losses will be less severe. This calculation also assumes that there will be no savings under Tier 3, although more flexible data requirements may mean that applicants will be able to provide adequate baseline data more easily than under the revenue variation method.

3. Comparison of SEL Findings. The database can also be used to compare findings with respect to the likelihood of a SEL finding and the findings in individual cases. The database provides what the findings:
   a. Would be with a direct use (without judgement) of revenue variation method,
   b. Would have been with the proposed loss-based approach *given data submitted under the current methodology*, and
   c. What they actually were determined to be by the analyst.

C. Re-certification

To estimate the potential cost savings EPA estimated the:

1. Number of section 18s that would have been eligible for re-certification. EPA assumes that the same proportion will be eligible in the future.
2. Resources required by the state and EPA for a full application & review compared to a review with re-certification.

III. Results of the Analysis of Proposed Method for Determining SEL

A. Summary of exemption requests. See Table 2 below.

Table 2. Summary of emergency exemption requests received by EPA annually, and the numbers of requests used in the Economic Assessment for the section 18 proposed rule.

Set of exemption requests	Average Annual Number	Comments
Total exemption requests received/year	541	Includes all specific, quarantine, public health, and crisis exemption requests
Number of specific exemption requests received/year	500	The proposed process revisions only apply to specific exemptions
Number of specific exemption requests received/year for which bio/econ analysis is done	95	The Biological and Economic Analysis Division (BEAD) does not do analysis when the emergency is not SEL-type, when BEAD's conclusion for one state applies to others for same emergency in same year, or for many repeat requests
Number of specific exemption requests received/year for which bio/econ analysis is done, AND for which we have complete data to do comparative analysis of revenue variation and loss-based methods	45	BEAD keeps a database in which analysts record certain data from the application, the results of the revenue variation method, and the analyst's SEL conclusion. However, in some cases the data is incomplete
Number of specific exemption requests receieved/year for which bio/econ analysis is done, AND for which we have complete data to do comparative analysis of revenue variation and loss-based methods, AND for which we have the analyst's SEL conclusion available in the database	26	In some cases, the BEAD database is complete, except for the conclusion on SEL.

NOTE: average annual numbers are based on four-year averages for FY2000-FY2003. Each set of exemption requests is a subset of the set(s) described in the row(s) above it.

A. Dataset

1. Number of Applications Received for specific exemptions from 2000 through 2003 averaged about 500 annually. This average is assumed to be the likely number of applications to be received in the future. (EPA, 2003b) The proposed rule only applies to specific exemption requests.

2. Number of Applications Reviewed for SEL by BEAD[1] from 2000 through 2003 averaged about 95 annually for specific exemptions only. This average is assumed to be the likely number of applications

[1] BEAD is the Biological and Economic Analysis Division of the Office of Pesticide Programs of EPA. BEAD does the biological and economic reviews and analyses of emergency exemption

to be reviewed by BEAD for SEL in the future. A BEAD review for SEL was conducted on less than one-fifth of the applications received. Many requests are not reviewed by BEAD for SEL for various reasons such as repeat requests, low risk, and similar conditions to granted requests from another state. (EPA, 2003a)

3. SEL Database
   a. As explained above, this database derived from SEL spreadsheet templates was used to estimate the likelihood of an application qualifying for a SEL
      (1) as recommended by the analyst using the current method, including the analyst's judgement,
      (2) under a direct use of the revenue variation method without the analyst'judgement or conclusion, and
      (3) under the loss-based method, *given data submitted under the current methodology*.
   b. The SEL database contains information from 181 (45 per year) SEL spreadsheets compiled in the course of the BEAD review covering almost one-half of the 378 (95 per year) requests reviewed for SEL by BEAD from 2000 through 2003. SEL spreadsheets were not necessarily utilized nor complete for each review for a number of reasons including:
      (1) Incomplete data submitted by the applicant.
      (2) Determination by the biologist that there was not an emergency condition.
      (3) Withdrawal of request by the applicant.
      (4) The revenue variation methodology was not appropriate for the situation.
   c. Of the 181 (45 per year) observations, the analyst's recommendation is known for 103 (26 per year) observations because of incomplete data in the SEL database. Some requests in the database were determined to be routine or non-urgent situations. However, these data may be used to calculate what losses would be required to be significant even if a SEL was not determined.

4. Specific exemption requests eligible for self-certification are estimated to be about 130 per year. (EPA, 2003b)

5. ICR (Information Collection Request). The ICR for emergency exemptions was used to estimate the resources required to apply for an emergency exemption and for EPA to review these requests. (EPA, 2000)

B. Losses Qualifying as a SEL under the Revenue Variation Method.

To qualify as a SEL under the revenue variation method, the loss should cause expected net revenue as a result of the emergency to fall below the minimum net revenue over a period of 5 years. This loss threshold is calculated as a percent of gross revenue as follows:

$$\frac{\text{baseline net revenue - minimum revenue over past 5 years}}{\text{baseline gross revenue}}$$

The chart below presents the frequency distribution of the losses as a percent of gross revenue that would have resulted in the expected net revenue being equal to the minimum net revenue for the 181 analyses available for observation from the period 2000-2003.

Figure 1. Frequency Distribution of Minimum Losses Qualifying as SEL.

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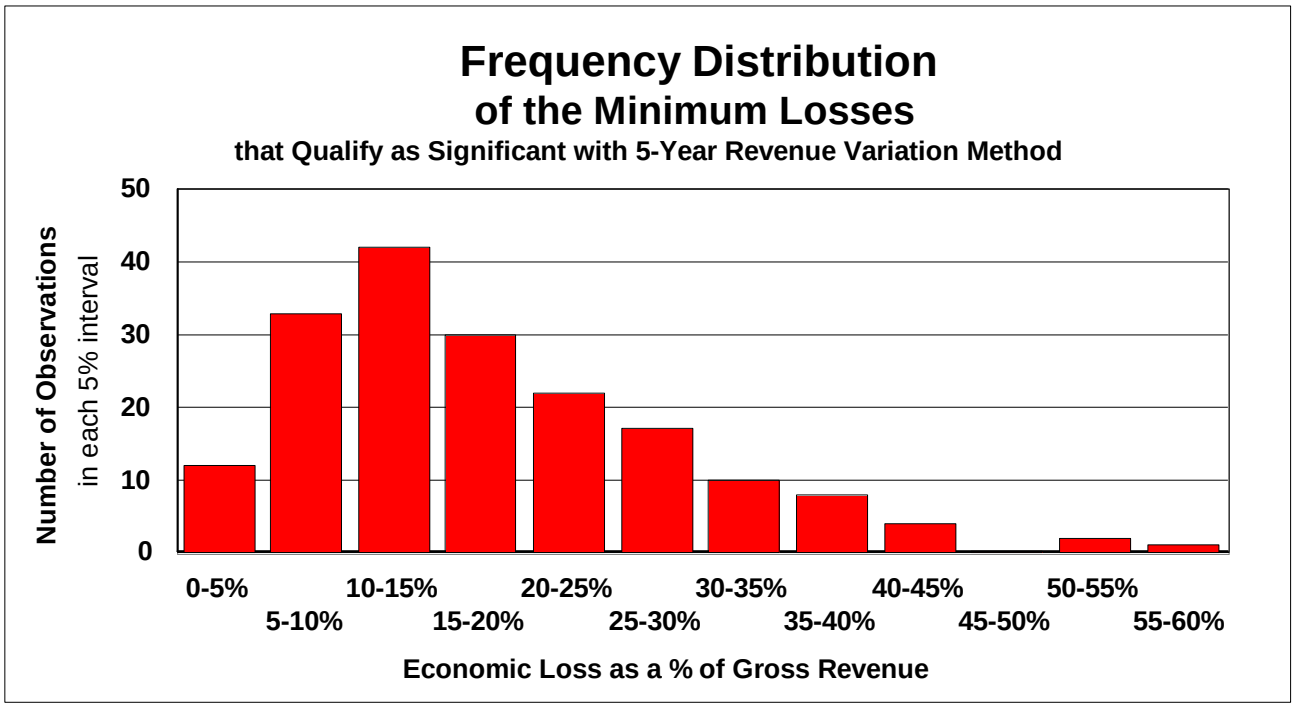
requests to determine if there is an emergency condition and if the emergency condition would lead to a SEL.

This frequency distribution demonstrates the perverse nature of the current method of



determining SEL. Out of the 181 observations, the following number (and percent) of requests could have qualified as having a SEL under a direct interpretation (without judgement) of the revenue variation method with the following losses as a percent of gross revenue:

1. 12 (7% of 181) requests with a loss of 5%.

2. 45 (25%) requests with a loss of 10%.

3. 91 (50%–the median) requests would have qualified with a loss of 15.3%. The other 90 would have required losses ranging between 15.3 % and 60% to qualify with a SEL.

4. 117 (65%) requests with a loss of 20%. The other 64 (181-117 or 35%) requests would have required losses ranging between 20% and 60% to qualify with a SEL.

5. 3 (2%) requests would have required a loss of 50% or more to qualify as having a SEL under a direct interpretation of the revenue variation (current) method.

6. Conclusion. A consistent standard of loss (as the proposed loss-based method) that would qualify as a SEL would be more equitable.

7. Average. The average calculated loss threshold under the current variation method was about 18% of gross revenue. The average was higher than the median of 15% because of the skewed distribution. The calculated loss threshold is the loss minimum loss required to qualify as a SEL.

C. Cost Savings as a Result of Changing Data Requirements for Determining SEL

1. .Requests Passing Each Tier with a Finding of a SEL. Table 3 below shows the percent and number of requests that would have qualified for a SEL under the proposed loss-based method, *given data submitted under the current methodology*[2].

[2] Results may be slightly different under more flexible data requirements since the historical data used for this analysis may not be representative of situation growers face. For example, under

a. About 55% would qualify for Tier 1 and would not require economic data nor an economic review.
b. Another 10% that would not qualify for Tier 1 would qualify for Tier 2 and not require production cost data.
c. Another 15% would qualify only for Tier 3, for which we assume no savings compared to the current method.
d. No savings are assumed for requests not qualifying for any tier.
e. EPA receives about 500 specific exemption requests per year. Of these about 95 are reviewed for SEL. Therefore, the annual applicant savings are based on 500 requests submitted, while the annual EPA savings are based 95 applications reviewed for SEL.

Table 3. Requests Likely to Pass Each Tier Using the Loss-based Method

Tier	Threshold	Required Data & Analysis	Requests likely to pass tier*		
			%	Total*	Bio/Econ*
Tier 1	≥ 20% yield loss	Yield loss	55%	276	52
Tier 2, but not Tier 1	Loss ≥ 20% gross revenue	Yield loss + prices, cost changes & gross revenue	10.5%	53	10
Tier 3, but not Tiers 1 & 2	Loss ≥ 50% of net revenue	All of the above + operating cost & net revenue	15.5%	77	15
Requests passing any tier			81%	406	77
Requests not passing any tier			19%	94	18
Total requests per year (Average 2000-03)			100%	500	95

Numbers may not exactly add, due to rounding

* While the average number of requests per year is 500, about 95 are reviewed for SEL. The percentages passing each tier are based on 181 observations (2000-03) where EPA had data on past analyses of SEL. These percentages are applied to all 500 applications (total) for estimating annual applicant savings, but only to the 95 applications in which a biological and economic review (Bio/Econ) was done to determine SEL when estimating annual EPA savings.

1. Cost Savings for the Applicants (States). The table below estimates the application cost savings that are likely to occur as a result of changing to the loss-based method.
   a. The ICR (EPA, 2000) estimates that it takes about 99 hours to apply for an emergency exemption at a cost of $54 per hour or over $5000 per application. Of this 99 hours, an estimated 74 hours is spent processing, compiling, reviewing, and providing all the requested data, including efficacy and risk data. EPA assumes that about 25% of the time providing all of the data is required to provide the economic data under the current method. If the application qualifies for a SEL in Tier 1, the economic data would not be required, thus saving almost 19 hours or almost $1000 per application. For 276 applications that are likely to qualify under Tier 1, the savings would be almost $276,000.
   b. If an applicant qualifies for a SEL under Tier 2, but not under Tier 1, limited economic data is required. EPA assumes that this limited data would require about half of the time required for economic data under the current method. Therefore, the savings would be about 12.5% of the time

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the current method average historical price was generally used as a baseline, while proposed method may use other information to determine the price most likely to be received by growers.

required to provide all data under the current method – about 9 hours or $500 per application. With about 53 applications that are likely to qualify for a SEL in Tier 2, but not Tier 1, and that would provide limited economic data, the savings would be almost $26,500.

c. While the data required under Tier 3 may be less than required under the current method, EPA makes the conservative assumption that there would be no savings. Often an applicant may provide historical data to establish a baseline from which to calculate the loss. Also, no savings are assumed for requests with no finding of SEL.

d. EPA estimates the total annual savings to the applicants to be almost 5,600 hours or over $300,000.

Table 4. Cost Savings for Applicants from Proposed Loss-based Method

	Current Cost		Savings as a Result of Qualifying for a SEL Under:		
Applicant	**Application**	**Data ***	**Tier 1**	**Tier 2**	**Total Savings**
Avg wage rate	$54 per hour				
% savings			25%	12.5%	
Hour/application	99	74	18.5	9.25	
Applications/year	500	500	276	53	329
Hours per year	49,500	37,000	5,106	490	5,596
$ per application	$5,346	$3,996	$999	$500	
Total $ per year	$2,673,000	$1,998,000	$275,724	$26,474	$302,198

Numbers may not exactly add, due to rounding

* The estimate of the time and cost required to process, compile, review, and provide data.

1. Cost Savings for EPA. The table below estimates the review cost savings that are likely to occur as a result of changing to the loss-based method.

   a. The ICR (EPA, 2000) estimates that it takes about 108 hours for EPA to review an emergency exemption. Of this 108 hours, it takes about 28 hours to review the biological and economic data in order to determine if there is an emergency condition and a SEL[3]. Most of the time is spent by the biologist in reviewing the emergency condition. EPA assumes that 25% of the time (about 7 hours) is spent by the economist in the determination of SEL under the current method. At a cost of $67.25 per hour the biologic and economic review costs almost $1900 per application, with the economic analysis costing about $470.

   b. If the application qualifies for a SEL in Tier 1, the economist review would not be required, thus saving about 7 hours or about $470 per application or about $24,500 annually for 52 applications likely to qualify for a SEL in Tier 1.

   c. If an applicant qualifies for a SEL under Tier 2, a limited economic review would be required. EPA estimates that this limited review would require about 40% of the normal time to do a full economic analysis or 10% (40% x 25%) of the time required for the biologic and economic review under the current method with a savings of about $190 per application or almost $1,900 for 10 applications that are likely to qualify for a SEL in Tier 2.

   d. EPA makes the conservative assumption that there would be no savings in the review of Tier 3, including those requests with no finding of SEL.

[3] Based on TAIS (Time Accounting Information System) of OPP (Office of Pesticide Programs), the time spent for the biologic and economic review is slightly over 25% of the time reported by all of OPP in processing emergency exemptions. (EPA, 2003c)

e. EPA estimates the total annual savings of the biologic and economic review to be almost 400 hours or about $26,000.

Table 5. Cost Savings for EPA from Proposed Loss-based Method

	Current Cost		Savings as a Result of Qualifying for a SEL Under:		
EPA	**EPA**	**Biologic & Economic**	**Tier 1**	**Tier 2**	**Total Savings**
Avg wage rate	$67.25 per hour				
Savings			25%	10%	
Hours/application	108	28	7	2.8	
# of applications	95	95	52	10	62
Total hours	10,206	2,646	364	28	392
$ per application	$7,263	$1,883	$471	$188	
Total $ per year	$686,354	$177,944	$24,479	$1,883	$26,362

1. Total Saving. EPA estimates the total potential savings for the states and EPA combined to be about a third of a million dollars as a result of changing data requirements and using the loss-based method of determining SEL.

B. Comparison of Findings

1. Likelihood of a SEL Finding

The table below compares the number and percent of findings under a direct use (without judgement) of the current and proposed methods, and what the analyst actually concluded using judgement.

a. The analyst found a SEL a higher percentage of time (83%) than a direct use of the revenue variation method would indicate (72%). The higher findings of a SEL by the analyst were mainly the result of the analyst eliminating outliers where past revenues were very low due to unusual conditions. Such outliers distort typical conditions and the loss as a result of the emergency condition would have to be overly large to qualify for a SEL. By eliminating the outliers, the historical data is more indicative of normal conditions and the calculated threshold needed to qualify as a SEL is less biased.

b. The percent of time the loss qualified as a SEL under the loss-based method (given that the data were submitted under the present methodology) was closer to what the analysts found than what a direct use of the revenue variation method found. Since the loss-based method is less affected by outliers in the historical data[4], it is less dependent on subjective decisions of the analyst.

Table 6. Comparison of Findings

[4] Using data submitted under the present approach may result in some bias if average values for yield and prices are used to represent typical conditions. Under revised data requirements, states could submit data that better represents typical conditions if historical averages are inappropriate.

Finding	Number and Likelihood of a Finding		
	Current Method		Proposed Method
	Actual by Analyst*	Revenue Variation*	Loss-based
SEL	86 (83%)	131 (72%)	147 (81%)
No SEL	17 (17%)	50 (28%)	34 (19%)
Total Observations* 2000-03	103	181	181

* Out of 181 observations, the actual finding by the analyst is known in 103 cases. The actual findings of SEL by the analyst exceeds what the current revenue variation method would have found without judgement. The analyst uses judgement to eliminate outliers in annual revenue data that distort the findings of SEL.

1. Cross Agreement of Findings

The table below shows the percent of time that the findings of a SEL agreed with each other under the following:

a. What a direct use of the revenue variation method would have determined.
b. What the analyst actually determined.
c. What the loss-based method would have determined.

This table below is based on 103 observations where the recommendation of the analyst was known. The results show a high degree of agreement between the various methods.

Table 7. Cross Agreement of Findings

Cross Agreement of Findings based on 103 observations 2000-03*	% Agreement		
	SEL	no SEL	total
Analyst with Revenue Variation Method	76%	14%	90%
Analyst with Loss-based Method	82%	6%	88%
Revenue Variation Method with Loss-based Method	76%	6%	82%
Analyst with Revenue Variation & Loss-based Methods	74%	6%	80%

* Out of 181 observations, the finding of the analyst is known in 103 cases.

1. Conclusions of comparisons. The two tables above demonstrate that changing from the current method to the proposed loss-based method would:

a. Not cause a significant change in the overall likelihood of a SEL finding as compared to the current revenue variation method as modified by analyst judgement such as eliminating outliers. The analyst made a finding of SEL in 83% of the cases studied, while the loss-based method would have found a SEL in 81% of cases.

b. Result in some different findings in individual cases. The analyst and the loss-based method arrived at different conclusions 12% of the time. In a few cases the analyst found a SEL with a yield loss and economic loss as a percent of gross revenue of less than 20% because these losses were sufficient to cause the net revenue to fall below the lowest net revenue of the past 5 years. In other cases, the analyst did not find a SEL with a yield loss greater than 20% because these losses were not sufficient to cause the net revenue to fall below the lowest net revenue of the past 5 years.

In some cases there was not good data on the expected yield loss, so a judgement was made whether or not the expected loss would exceed the minimum loss needed to qualify as significant with the revenue variation method.

II. Results of Analysis of Re-certification

A. Applicant (States) Savings

The table below estimates the likely savings to the applicants from re-certification. The calculations are similar to the cost savings analysis of the loss-based method for determining SEL. If an applicant re-certifies, data will not be required, thus saving the 74 hours that the ICR estimates is needed to provide the data, thus saving about $4000 per application. EPA estimates that about130 applications per year may qualify for re-certification resulting in a total savings to the applicants of over $0.5 million per year.

Table 8. Cost Savings to Applicants from Re-certification

Applicant	Current Cost	Savings from Re-certification	
Average wage rate	$54 per hour		
Hours per application	99	74	75%
Number of applications	500	130	
Total hours	49,500	9,620	
$ per application	$5,346	$3,996	
Total $ per year	$2,673,000	$519,480	

A. EPA Savings

The table below estimates the likely savings to EPA from re-certification. Since many repeat requests that would have qualified for re-certification are currently not as thoroughly reviewed as new requests, the EPA savings would not be as great as the applicants'. EPA estimates (conservatively low) that it would save about 10% of the average time it currently takes to review an application. According to the ICR it takes about 108 hours to review an application, thus savings for EPA would be almost 11 hours or over $700 per application, with a total annual savings of over 1,400 hours or $94,000.

Table 9. Cost Savings to EPA from Re-certification

EPA	Current Average Cost	Savings from Re-certification	
Average wage rate	$67.25 per hour		
Hours per application	108	11	10%
Number of applications	500	130	
Total hours	54,000	1,404	
$ per application	$7,263	$726	
Total $ per year	$3,631,500	$94,419	

A. Total Savings from Re-certification. EPA estimates the annual combined savings for the applicants and EPA from re-certification to be over $600,000.

II. Combined Savings

The savings from re-certification and the loss-based method for determining SEL are summarized and rounded in $ millions in the table below:

Table 10. Summary of Cost Savings

Savings	Loss-based Method	Re-certification	Total
Applicants	$0.30 million	$0.52 million	$0.82 million
EPA	$0.03 million	$0.09 million	$0.12 million
Total	$0.33 million	$0.61 million	$0.94 million

By provision. The total savings from the loss-based method are about a third of a million dollars, and from re-certification are over $600,000 for a grand total of almost $1 million.

By entities. The total savings to the applicant and EPA are over $800,000 and $100,000, respectively, for a grand total of almost $1 million.

I. Information Collection Request (ICR)

This economic analysis is based on the ICR for emergency exemptions (EPA, 2000). The provisions of the proposed rule only reduce the paperwork burdens as estimated in this economic analysis. Therefore, the current ICR is still valid and provides an estimate of the paperwork burden for those applications that would not benefit from the proposed rule. For the applicants that benefit from the proposed rule, the burden will be reduced. The applicants that benefit include:

1. Those qualifying for self-certification
2. Those applicants who can show a SEL in Tiers 1 or 2 of the loss-based method.

In those applications where the applicant burden is reduced, EPA's burden is also reduced.

II. Limitations of Analysis

A. Total Savings. The savings for the loss-based method and re-certification were each estimated as if the other were not going to be implemented, *i.e.*, the number of applications would benefit from the savings of the loss-based method would be slightly less as a result of economic data and analysis not being required because of re-certification. Also, the savings from re-certification were based on the current method. Since the loss-based method would usually require less time to prepare, the savings from re-certification would be slightly less for the applicant. However, this double counting of savings is likely to be small because repeat applications benefitting from re-certification are not likely to be the same applications that would benefit from the loss-based method.

B. Average Savings. This analysis was based on average hours and costs required to prepare and review applications. However, such costs vary widely. The costs to prepare and review a first-time application for an emergency exemption are likely to be higher. Since these first-time applications are more likely to benefit from the savings of the loss-based method for determining SEL, the savings from the loss-based method are likely to be underestimated. On the other hand, the costs for preparing repeat applications are likely to be less. Since repeat applications are more likely to benefit from the savings of re-certification, the savings from re-certification are likely to be over estimated for the applicants. Since EPA has no basis to differentiate the costs of first time vs. repeat applications, it did not fully attempt to do so, except that EPA assumed a conservatively low savings for EPA for re-certification. These under and over estimates are likely to offset each other somewhat.

C. Unrealized Savings. Some applicants that qualify for Tier 1 or 2 of the loss-based method may not realize their potential savings because they might provide additional data in case they do not pass those tiers. Similarly, some applicants that would qualify for re-certification may not take advantage of it. However, with almost no experience from the pilot program, EPA has no basis to estimate these unrealized savings. Instead, EPA has estimated the potential saving applicants could realize if they chose to do so.

D. Time Savings. The hours that would be saved under the various scenarios (Tier 1, Tier 2, re-certification) were mostly assumed. In making these assumptions, EPA has tried to be conservative toward underestimating the savings. Several factors were used to help make some of these assumptions. For example, the 74 hours required to provide data is the basis of the savings for re-certification. Other savings are possible from other parts of the application that are likely be simpler, but were not estimated. Therefore, the savings from re-certification may be underestimated. However, repeat applications are likely to be less costly, thus offsetting this underestimation.

E. Conclusions. In spite of these limitations, the conclusions are valid . There should be substantial savings from re-certification and from changing data requirements for determining SEL. Increasing flexibility in the data requirements in conjunction with changing the methodology for determining SEL will also increase fairness, openness and objectivity.

III. Conclusions

A. Benefits

1. Cost Savings. EPA estimates substantial cost savings to applicants and some savings to EPA from the proposed loss-based method for determining SEL and re-certification. EPA estimates savings of over $800,000 to the applicants and over $100,000 to EPA . Different assumptions in the analysis would change the magnitude of the savings estimates, but would not change the conclusion that there will be cost savings.

2. Transparency, Consistency, and Equity. EPA believes that the determination of SEL under the loss-based method will be more consistent and transparent. Currently, differences in variations in revenue

result in differences in the magnitude of the losses that would qualify as SEL. To avoid extremes in inequities, analysts use judgement; however, such judgement is not consistent nor transparent. By reducing judgement the loss-based method is more transparent. With established thresholds for SEL, the loss-based method is also more consistent and equitable. EPA believes decision making will be improved under the proposed method.

3. Timeliness. Reduced analysis by EPA means more timely decisions on emergency exemptions.

B. Impacts. There are no costs associated with the proposed rule, only cost savings. With respect to the proposed loss-based method, our analysis shows that the overall likelihood of a finding of SEL would not be changed. However, in individual cases, the proposed method would result in different findings of SEL in about 12% of the requests. As discussed above, EPA believes that these different findings would be better since they would be more transparent, consistent, equitable, and timely.

IV. References

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